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COMPUTER AUTOMATED PAGE LAYOUT (PLA) FOR TEXT-GRAPHIC MATERIALS: USER'S GUIDE

DECEMBER 1982

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Technical Report 137

COMPUTER AUTOMATED PAGE LAYOUT (PLA) FOR
TEXT-GRAPHIC MATERIALS: USER'S GUIDE

William Terrell

Training Analysis and Evaluation Group

December 1982

Sponsored by
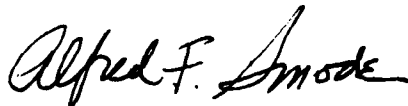
Chief of Naval Education and Training

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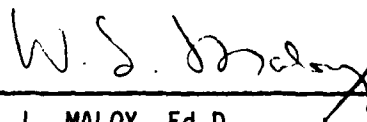
David W. Taylor Naval Ship Research and Development Center
Naval Technical Information Presentation Program

_____
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and Research and Development

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER Technical Report 137	2. GOVT ACCESSION NO. AD-A124146	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) COMPUTER AUTOMATED PAGE LAYOUT (PLA) FOR TEST-GRAPHIC MATERIALS: USER'S GUIDE		5. TYPE OF REPORT & PERIOD COVERED
		6. PERFORMING ORG. REPORT NUMBER
7. AUTHOR(s) William R. Terrell		8. CONTRACT OR GRANT NUMBER(s)
9. PERFORMING ORGANIZATION NAME AND ADDRESS Training Analysis and Evaluation Group Department of the Navy Orlando, FL 32813		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
11. CONTROLLING OFFICE NAME AND ADDRESS		12. REPORT DATE December 1982
		13. NUMBER OF PAGES 71
14. MONITORING AGENCY NAME & ADDRESS(if different from Controlling Office)		15. SECURITY CLASS. (of this report) Unclassified
		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE

16. DISTRIBUTION STATEMENT (of this Report)

Approved for public release; distribution is unlimited.

17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)

18. SUPPLEMENTARY NOTES

19. KEY WORDS (Continue on reverse side if necessary and identify by block number)

Page Layout
Text-Graphic Pages
Job Performance Aids
Procedure Training Aids

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

This user's guide describes computer routines called PLA for auto-
mating the layout of highly illustrated pages describing equipment
operation and maintenance procedures. This guide enables the relatively
inexperienced author to prepare job performance aids and portions of
procedure training aids. It describes how to (1) document procedures to
be presented, (2) prepare data for use with PLA, and (3) run the PLA
routines.

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ACKNOWLEDGMENT

Many people have contributed to the development of the page layout (PLA) routines and to this guide for using these routines.

The initial version of a computer program to solve the text-graphic page layout problem was developed under TAEG sponsorship by Dr. A. J. G. Babu and Cheickna Sylla of the State University of New York at Buffalo. TAEG began a second generation of this program that included for the first time the automatic printing of the formatted pages. Alan George of the University of Central Florida prepared this program. Subsequent revisions were made by M. Stephen Solomon, also of the University of Central Florida. Dr. William Terrell of TAEG prepared this guide on how to use the page layout routines.

Several TAEG personnel provided support to this project. Dr. Richard Braby, team leader for the computer aided authoring projects in TAEG, conceived the project and supported it. Mr. Charles Guitard ensured that the computer routines met TAEG software standards. Dr. M. Michael Zajkowski made valuable suggestions on the technical content and style of the presentation.

Appreciation is extended to LCDR Richard E. Ewell, Helicopter Antisubmarine Squadron One, who used an early version of the user's guide and provided recommendations for making it a more useful aid to authors.

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SECTION I

INTRODUCTION

The combination of increasing complexity of military equipment and a decreasing manpower pool with questionable quality of entering military personnel and rapid turnover presents a paradox: longer training pipelines and shortfalls in trainee capability. Admiral Isaac Kidd, USN Retired, Chairman of the Defense Science Board Summer Study on Training and Training Technology[1] stated, "It is clear that the training task is harder than it ever has been. It may well not need to get harder if we smarten up. Modern technology may offer some substantial increases in training efficiency that could save scarce time for training and dramatically improve force effectiveness."

One avenue towards increases in training efficiency is the use of computers to construct curriculum materials. Specifically indicated is the expanded use of text-graphic instructional materials to describe how to operate and maintain military equipment (see appendix A).

While text-graphics materials have proven successful both as learning aids and job performance aids, they are expensive to develop. The high cost has restricted the use of these materials to research projects and to a few well supported programs. The high cost of text-graphic materials is due in part to the labor intensive work of creating the graphic art and in composing complex pages of illustrations and text. To reduce the cost of producing text-graphic materials, computer routines are being developed to generate illustrations and to automate page composition. The present report is a contribution to this effort.

PURPOSE

This report is a user's guide for the computer automated Page Layout (PLA) of text-graphic materials. Specifically, this guide is designed to aid the user in:

- documenting the procedures to be trained
- preparing format data for use with PLA routines
- employing PLA to layout text-graphic pages.

TAEG INITIATIVES

PLA was developed to support the production of Procedure Training Aids (PTA). The PTA is one of five learning aid formats developed to teach five common types of learning tasks in Navy training.[2] Both PLA and the learning aid formats were developed under the sponsorship of the Naval Technical

---

[1]Defense Science Board, Summer Study, Training and Training Technology, August 1982.

[2]R. Braby, C. J. Brown, and A. F. Smode. *Handbook of Format Models for Designers of Technical Training Materials.* TAEG Report No. 129, 1982. Training Analysis and Evaluation Group, Orlando, FL 32813

Information Presentation Program (NTIPP) at the David W. Taylor Naval Ship Research and Development Center. NTIPP is a major effort by the Navy to use current technology in the publication of training materials and technical manuals for operating and maintaining military equipment. The Chief of Naval Education and Training (CNET) tasked TAEG to support the NTIPP effort since the technical manuals and training materials will be employed in CNET-managed "C" schools.

OVERVIEW OF THE USER'S GUIDE TO PLA

In addition to this introduction, this guide contains two sections and four appendices. Section II describes the processes involved in preparing data for use in PLA. These processes include how to: (1) describe the steps in the procedures to be taught, (2) organize the description of the procedure into information pages which meet the requirements of the procedure training aid format, and (3) prepare worksheets with picture dimensions and picture-text relationships which will be entered into the computer routine as format data. Section III is a job performance aid on how to actually enter the format data into the PLA routine.

Appendix A contains sample pages of the instructional material created using PLA. Appendix B is the format model for designing procedure training aids. Error messages for the PLA system are listed in appendix C. A grid master to produce an overlay to compute picture dimensions and coordinates is contained in appendix D.

SECTION II

PREPARING FORMAT DATA FOR USE IN PAGE LAYOUT (PLA)

This section provides directions on how to:

- document procedures to be taught
- organize the document information into Procedure Training Aid page formats
- prepare worksheets to enter Procedure Training Aid format data into the Page Layout routine.

These activities performed in sequence are described in detail below.

DOCUMENT THE PROCEDURE

The first task is to collect and organize descriptions of each step in the procedure to be taught. Many procedures will have an official checklist which, while it will not provide much information about how to perform the procedure, will provide a sequence of the steps. Other procedures will not have a checklist and, thus, will have no formal organization other than that given by subject matter experts (SME) in the actual performance of the procedure. If a checklist does not exist, one must be created for the procedure. Document the performance of the procedure to be taught in the following manner:

1. Use the procedure checklist to organize the sequence of steps in the PTA.

2. Observe a SME actually perform the procedure. Describe in writing as clearly as possible each step in the procedure as performed by the SME. Photograph the entire piece of equipment and each portion that is used in the procedure.

3. Assemble a number of SMEs to review the photographs and written description of the procedure. Revise the description until the SMEs arrive at a concensus that the procedure is described as it should be taught.

4. Group the steps of the procedure into clusters that logically fit together. Large clusters (more than seven steps) should be divided into two or more smaller clusters.

5. Describe in as clear and brief language as possible the following:

- operator actions performed in each step of the procedure
- equipment responses (if any) to the action performed at each step
- operator reactions to equipment responses as they occur.

6. Select pictures which illustrate each action and visual response in the performance of the procedure.

ORGANIZE THE DOCUMENTED INFORMATION INTO PTA PAGES

Utilization of the PTA format requires the preparation of four distinct types of pages: Information, Paraphrase, Road Map and Mock-up. All information taught in the PTA is introduced on Information Pages. Subsequently, Paraphrase Pages are used to provide self-checks on memory of that information. Road Map Pages provide prompted practice in the performance of the procedure through chaining drills called finger tracing exercises. Mock-up Pages provide unprompted practice in performance of the procedure requiring recall of the steps. The PLA routines are used in creating the Information Pages and the Paraphrase Pages which are variations of the Information Pages. The Road Map and Mock-up Pages are easily constructed by hand and are not supported by the PLA routines. See appendix B for a detailed description of these PTA format pages. The following steps describe the preparation of Information Pages. Each step is illustrated in figure 1.

1. Select the step(s) to be included on an Information Page. Limit the information on a page to as few steps as practical (rarely more than four).

2. Identify in the Header the cluster or checklist items and specific steps included on the Information Page.

3. Illustrate the steps with an overview picture of the equipment and close-up views of the portion of the equipment related to the steps described on that page.

4. Illustrate observable equipment responses to each action whenever the responses are essential cues for performing the procedure.

5. Describe the action for each step and enclose it in a box called an action label. Each label should be numbered in the sequence in which the action occurs in the procedure. An arrow should point to the location on the close-up illustration where the action takes place.

6. Describe responses that result from actions in separate response labels adjacent to the action label or include them in the action label.

7. Underline key words or numbers that must be remembered while performing the procedure.

8. Include directions to the learner in a Footer statement at the bottom of each page.

WRITING STYLE

Writing style is critical to the success of a PTA. Authors should ensure that the writing is clear and understandable. For that reason they should use active voice rather than passive voice when preparing label text.
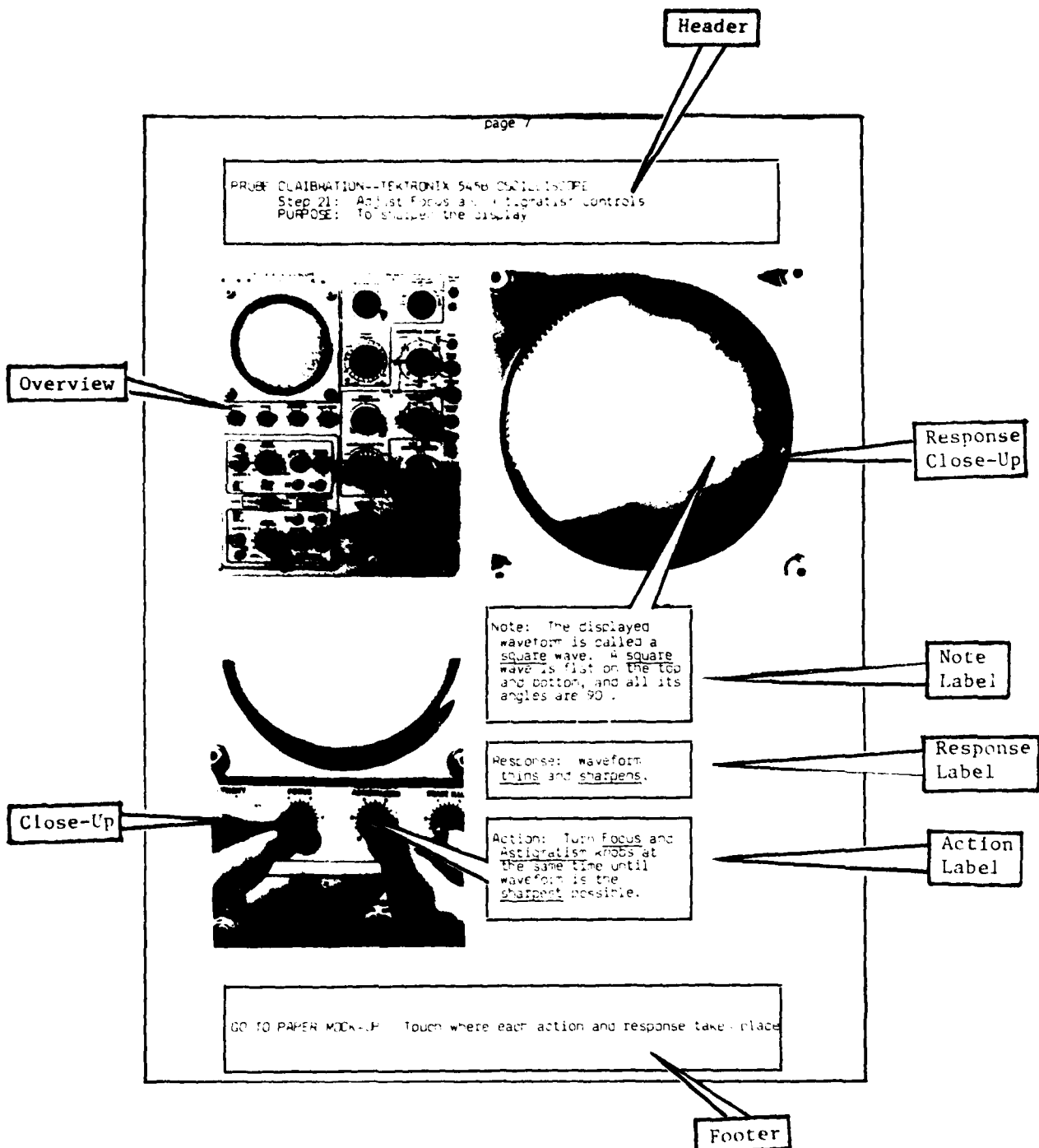
Figure 1   Information Page

An illustration of the differences between the voice and passive voice is shown below. Active voice tends to be terse and encourages readers to perceive themselves performing the actions. Passive voice tends to be wordy and obscures the intended action.

PASSIVE VOICE	ACTIVE VOICE
The Vertical Gyro switch must be set to the port position. The Port position for the Vertical Gyro switch is in the UP direction.	Set Vertical Gyro Switch to Port (up).
The four Hardover switches should be checked to determine whether they are in the OFF position. Also, the covers for the Hardover switches must be returned to the down position after the check is completed.	Check 4 Hardover switches OFF (covers down).

Authors preparing data for entry as input for the PLA program will find it convenient to use worksheets. These worksheets are written records of the contents of a page as well as a set of notes to aid in the data entry process. Also, using worksheets will make it easier to edit and revise PLA Page Data and to create the paste-up of camera-ready pages.

JOB PERFORMANCE AID FOR PREPARING WORKSHEETS

This subsection provides guidance in preparing worksheets which will be used to enter data into the PLA program. This material should be used in the following manner: (1) check the header to identify the specific procedure addressed on the page, (2) read label number one and any adjacent notes, (3) identify where the action occurs in the illustration, and (4) perform the action required, if any, and go on to the next numbered label. The procedures for preparing worksheets include the following:

- dimensions of usable space on a page
- contents of Header and Footer
- selecting and numbering pictures
- label text and number sequence
- picture and label relationships.

These procedures are included in the following seven pages. Completion of this process for all steps to be included in the PTA will result in a complete set of worksheets for generating the Information Pages. Section III provides directions for entering the information and notes from the worksheets into the PLA program.

PLA: DATA PREPARATION--WORKSHEETS

Page Dimensions

1.   Page = 8 1/2" x 11".
   Usable space without a
   Header or Footer = 7" x
   9 1/2".

2.   Usable space with a
   Header = 7" x 8 1/2".

3.   Usable space with Header
   and Footer = 7" x 8".

9
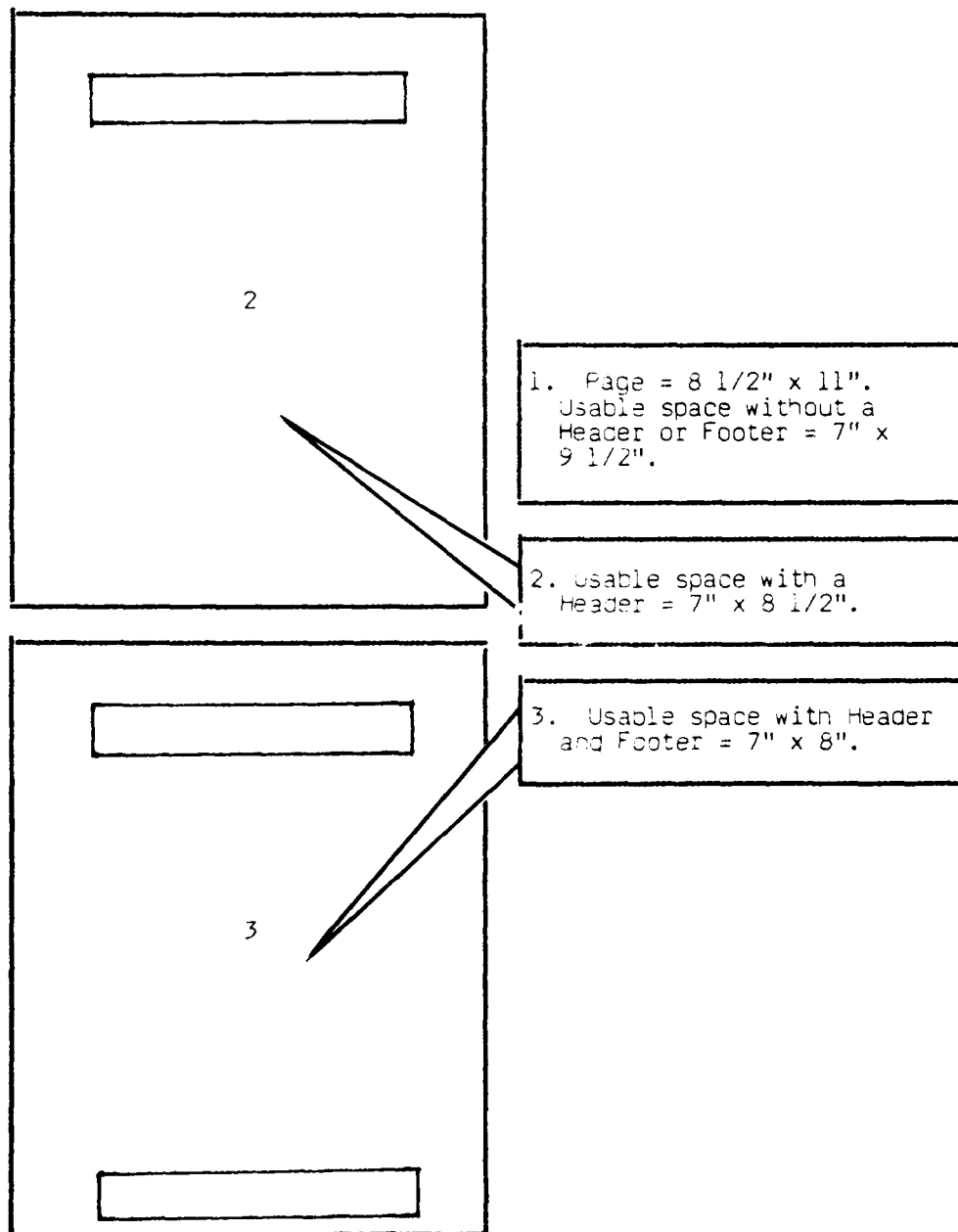
PLA: DATA PREPARATION--WORKSHEETS

Header and Footer

1. Write the Header and Footer including the information listed in labels 2 through 6.

2. Cluster Name

3. Equipment Name

4. Step

5. Purpose (if appropriate)

6. Special Directions for readers.

Go To Paper Mock-Up Touch where each action and response takes place

PLA: DATA PREPARATION--WORKSHEETS

Pictures

Probe Calibration Procedure - Tektronix 545 B Oscilloscope
Step 21 Adjust Focus and Astigmatism Controls
PURPOSE: To sharpen the display.

pic 1
(Overview)

pic 2
(close-up)

pic 3
(Response)

Go To Paper Mock-Up   Touch where each action and
response takes place

1. Draw a box to represent each picture to be used on the page.

2. Number the pictures.

Note: Picture 1 is always the overview picture.

PLA: DATA PREPARATION--WORKSHEETS

Labels

1. Write the label text.

2. Number the labels in the order you wish them to appear.

Note: Layouts with 1 and 2 pictures may have up to 8 labels. Layouts with 3,4, and 5 pictures may have up to 4 labels.

PLA: DATA PREPARATION--WORKSHEETS

  Picture Dimensions

Probe Calibration Procedure - Tektronix 545 B Oscilloscope
Step 2: Adjust Focus and Astigmatism Controls
FOCUS. To sharpen the display
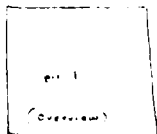
pic 1
(overview)

2.75 x 3.25

pic 2
(close-up)

3.5 x 3.5

pic 3
(Response)

1.   Action Turn Focus and
     Astigmatism knobs at
     the same time until
     wave form is the
     sharpest possible.

2.   Response. Waveform
     thins and sharpens

3.   Note: The displayed
     waveform is called
     a square wave
     A square wave is flat
     on the top and bottom
     and all its angles
     are 90°.
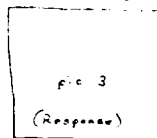
Go To Paper Mock-Up   Touch where each action and
                      response takes place

1. Record the picture dimensions on top of the pictures.

Note: Picture dimensions are entered as decimals rather than fractions.

Note: The first number in picture dimension is width, the second number is height.

Note: A Picture Coordinates Grid is provided in Appendix D. The Grid is intended to aid the author calculate the dimensions and coordinates of pictures.

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PLA: DATA PREPARATION--WORKSHEETS

Pictures and Label Relationships

1. Determine the coordinates of the points in the pictures at which arrows from the close-up pictures and labels will terminate.

Example: The coordinates for picture 2 are 1" in from the left side and 0.75" down from the top of the overview picture.

Note: Coordinates are always measured from the upper left corner of the picture.

Note: Labels can not be attached to Picture 1 except in a one picture layout.
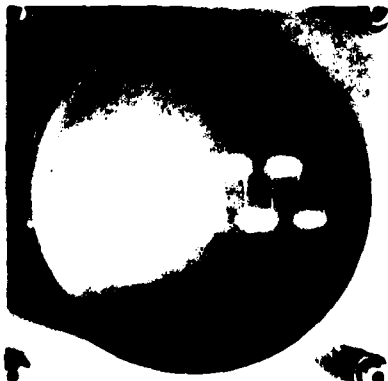
PLA: DATA PREPARATION--WORKSHEETS

Picture and Label Relationships

Probe Calibration Procedure - Tektronix 545 B Oscilloscope
Step 21 Adjust Focus and Astigmatism Controls
PURPOSE: To sharpen the display.

2.75 x 3.25

1. Action Turn Focus and Astigmatism knobs at the same time until wave form is the sharpest possible.

2. Response

3. Note: The displayed waveform is called a square wave. A square wave is flat on the top and bottom and all its angles are 90°.

Go To Paper Mock-Up   Touch where each action and response takes place

1. Record the coordinates and circle them so that they are not confused with the dimensions.

2. Draw arrows to connect pictures and labels with their circled coordinates.

Note: Some labels and pictures will not be connected to others, thus, will not have coordinates.

After all worksheets are completed, enter the data as input for the PLA program.

SECTION III

A JOB PERFORMANCE AID FOR
CONSTRUCTING PAGES WITH PAGE LAYOUT

This section contains detailed instructions for creating Information Pages using the PLA program. The section is self-contained and may be used separately from the remainder of the report. There are two page numbering systems in section III. Numbers at the top of the page refer exclusively to the Job Performance Aid. Numbers at the bottom of the page relate to page position in the present report.

This JPA contains detailed instructions for creating an Information Page using PLA. These instructions include how to: access the PLA program on the computer, create and edit PLA files, and generate, display, and print page layouts.

A description of equipment requirements and a brief overview of the program segments within PLA are presented first. The remainder of the section is a Job Performance Aid on how to use PLA. The reader should note that the PLA program was used to lay out the instructional pages of this section.

Learning the PLA procedure will be facilitated if each step is performed on a computer terminal. Also, performance of the procedures requires at least one completed worksheet for data entry. Read the equipment requirements and the program overview and then follow the directions for Accessing the Page Layout Algorithm File. The illustrations in this JPA are computer print-outs of PLA displays generated as the JPA was developed. The content of these displays may be confused with the labels, therefore, the illustrations are denoted by a gray tone. The JPA should be used in the following manner: (1) check the header to identify the program segment and specific procedure addressed on the page, (2) read label number one and adjacent notes, (3) identify where the action occurs in the illustrations, and (4) perform the action required, if any, and go on to the next numbered label.

EQUIPMENT REQUIREMENTS

The PLA program was developed for use on a WANG 2200 VP or MVP system and is presently available only in WANG BASIC programming language.[3]

Equipment required to utilize PLA at the present time include:

```
Terminal - WANG 2116A CRT, or
           WANG 2236D CRT -- Graphics Capability

Disk     - WANG Hard Disk, or
         - WANG 2270A Diskette Drive

Printer  - WANG 2281 Daisy Wheel Printer
```

Authors using WANG 2270A diskette drives will need two of the drives to operate the PLA programs. The diskette containing the PLA programs must be inserted into the first diskette drive. The second diskette which is to contain the project files and work spaces will be inserted into the second diskette drive.

Federal agencies can obtain the PLA software by sending a written request along with one WANG 2270A flexible disk to the Training Analysis and Evaluation Group, Naval Training Center, Orlando, FL 32813.

[3]It is expected that some PLA users will convert the programs into languages compatible with other computer systems.

PLA OVERVIEW

Figure 2 contains an outline of the six segments of the PLA operations. The outline includes a brief description of each segment intended to assist the reader in establishing the relationships of the various operations of PLA.

The remainder of this section is a job performance aid, designed to instruct the reader in the step-by-step use of PLA.

I Page Layout Algorithm File	Segment I describes loading the disk, retrieving the PLA program, correcting page 1 to 7 system addresses (terminal, disk, printer), and entering the USER ID and Password.

II Creating/Editing Data Files	Segment II describes the retrieval and editing of existing files and the creation of new files within the Project, Book, and Page file catalogs. Also included is the page 8 to 24 creation and editing of Page Layout Data, e.g., Picture Dimensions, Picture-Label Relationships, and Header, Footer, and Label Text.

III Page Layout Generation	Segment III describes how Page Layouts are generated using the Page Layout Data created in segment II. Segment III pro- vides a Computer Layout Data Printout and page 25 to 27 Error Statements to aid the author in the analysis of problems which prevent the generation of a Page Layout with the given Page Layout Data.

IV Display Page Layouts	Segment IV assists in the analysis of problems by providing a graphic terminal display of pages generated. This section page 28 to 29 is not very useful on computer terminals that do not have graphic capability.

V Print/Plot Page Layouts	Segment V describes all of the Print/Plot options. First is the choice of either printing an Information Page or a Para- phrase Page. Second is the choice of the page 30 to 35 conditions under which arrows are or are not printed. Third is whether to Print the Header and/or Footer boxes. The final choice is whether to print a camera-ready copy or a high speed copy for proofing.

VI End of Session	Segment VI is an end of session message which indicates the systems have been page 36 properly terminated.

Figure 2. Outline of the PLA Operations

Figure 1. When [...] statements are entered. [...] not be pressed are indicated with [...]

SEGMENT I: ACCESSING THE PAGE LAYOUT ALGORITHM FILE

Disk Menu

1. If PLA programs are stored on a Diskette go to page 3.

   If PLA programs are stored on a hard disk go on to the next step.

2. If the PLA file is not included in the Menu display key in: CLEAR
            (your disk number)
Results: New Menu Display

```
***** 2200 VP/MVP DISK PGM SELECTION MENU *****

Select item with SPACE & BACKSPACE.                      Partion 3, 56 K
Key RUN to execute, CLEAR or PREV SCRN for previous screen.      Terminal 1



    # PLA: Prototype PAGE LAYOUT ALGORITHM System

    . CTS: Computer Assisted Training Evaluation/Scheduling System
    . PSS: Personnel Directory System

    . NRO: Naval ROTC Tracking System
    . PRSN: Performance Evaluation & Wage Data System
    . RTC: Recruit Training Scheduling Model
    . HELO: Helocopter Pilot Performance Data

    . SYSTEM Utilities Disk Menu (ISS Utilities)
```

3. Move the Cursor to your file by keying the Spacebar (down) or Backspace (up).
    Then key in: RUN
            (NO RETURN)

Results: The screen will read:
      LOADING PLA.ADRS

  Then the screen will read:
Welcome to page layout algorithm.

      Go to page 3.

SEGMENT I: ACCESSING THE PAGE LAYOUT ALGORITHM FILE

System Addresses

```
┌─────────────────────────┐   ┌─────────────────────────┐
│ 1. Check the Data Files,│   │ 2. If the addresses are │
│    System, Console, and │   │    not correct key in:  │
│    Printer addresses    │   │      (today's date)     │
│    located at the bottom│   │         RETURN          │
│    of the display for   │   │    Results:  The first  │
│    accuracy.            │   │    address will appear  │
│                         │   │    for correction.  Go  │
│                         │   │    to page 4.           │
└─────────────────────────┘   └─────────────────────────┘
```

```
┌──────────────────────────────────────────────────────┐
│ Welcome t    e Page Layout Algorithm                  │
│                                                        │
│    Please    er Today's Date (mmddyy): 051982          │
│                                                        │
│                                                        │
│                                                        │
│         .                                              │
│     :         Data Files         :   :System:Console:Printer: │
│     :                            :   :      :        :       : │
│     :   Project      Book-Page   :   : /D15 : /O05   : /211  : │
│     :     D15           D15      :   :      :        :       : │
└──────────────────────────────────────────────────────┘
```

```
┌─────────────────────────┐   ┌─────────────────────────┐
│ Note:  Your system      │   │ 3. If the addresses are │
│ manager will assign     │   │    correct, instead of  │
│ correct addresses.      │   │    the date key in:   E │
│                         │   │            RETURN       │
│                         │   │    Results:  The system │
│                         │   │    will request your    │
│                         │   │    USER ID.             │
│                         │   │    Go to page 5.        │
└─────────────────────────┘   └─────────────────────────┘
```

SEGMENT I. ACCESSING THE PAGE LAYOUT ALGORITHM FILE

System Addresses

```
┌─────────────────────────┐  ┌─────────────────────────┐
│ 1. After keying in      │  │ 2. If the address displayed │
│ today's date the system │  │ is correct key in: RETURN. │
│ addresses will be       │  │ Results: The next system   │
│ displayed one at a time.│  │ address will be displayed. │
└─────────────────────────┘  └─────────────────────────┘

┌────────────────────────────────────────────────────────┐
│ Welcome to the Page Layout Algorithm                     │
│                                                          │
│   Please Enter Today's Date (mmddyy): 05/19/82           │
│                                                          │
│   Please Enter Console Address: 005                      │
│                                                          │
│   Please Enter Printer Address: 211                      │
│                                                          │
│   Please Enter the Disk Address of                       │
│   the disk drive containing PLA System Programs: 015     │
│                                                          │
│   Please Enter the Disk Address of                       │
│   the disk drive containing PLA Data Files: 015          │
│                                                          │
│                                                          │
│       :     Data Files        :System:Console:Printer:   │
│       :                       :      :       :       :   │
│       :       /015            : /015 : /005  : /211      │
│       :                       :      :       :       :   │
└────────────────────────────────────────────────────────┘

┌─────────────────────────┐  ┌─────────────────────────┐
│ 3. If the address displayed │ Response: After the     │
│ is not correct key in:   │  │ final address change PLA │
│     (correct address)    │  │ will request your USER ID │
│       RETURN             │  │ and Password.            │
│                          │  │   Go on to the next page. │
└─────────────────────────┘  └─────────────────────────┘
```

SEGMENT I: ACCESSING THE PAGE LAYOUT ALGORITHM FILE

USER ID and Password

```
Welcome to the Page Layout Algorithm

    Please Enter Today's Date (mmddyy): 05/19/82

    Please Enter Console Address: 005

    Please Enter Printer Address: 211

    Please Enter the Disk Address of
    the disk drive containing PLA System Programs: D15

    Please Enter the Disk Address of
    the disk drive containing PLA Data Files: D15


    Please Enter Your USER ID: TERRELL      Please enter PASSWORD: ########

        !      Data Files      !   !System!Console!Printer!
        !                      !   !      !       !       !
        !        /D15          !   ! /D15 ! /005  ! /211  !
        !                      !   !      !       !       !
```

Note: See your computer
system manager for
information about USER ID
and PASSWORD.

1. Key in:
        USER ID
        RETURN
   If the program will
not accept your USER ID
go to page 6.

2. If the program
   accepts your USER ID
   key in: (Password)
             RETURN
   Go to page 7.

```
$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$
$$       We are now on our way to the      $$
$$     next exciting subsystem of the      $$
$$        PAGE LAYOUT ALGORITHM            $$
$$            [PLA.EDIT]                    $$
$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$
```

Note: This message
will appear when PLA
is moving to a dif-
ferent sub-system.

SEGMENT I: ACCESSING THE PAGE LAYOUT ALGORITHM FILE

USER ID Reset

```
Welcome to the Page Layout Algorithm

   Please Enter Today's Date (mmddyy): 05/19/82




   Please Enter Your USER ID: ########  Please enter PASSWORD:
   .. I'm sorry, it seems that your user id is being used by
   .. another user or some other user accidentally left files
   .. open.  Please check with all other users of the system.
   .. And if you still believe that an error exits, use a user
   .. ID of 'SYSTEM' and execute the option that resets the
   .. user Table.
```

```
Option!        Available Options
$       !   Reset User Table
        !
1       !   Input/Edit Layout Data
2       !   Generate ...uts
3       !   Display Layo...
4       !   Print/Plot Layout
        !
.       !   End of Session
```

```
Page Layout Algorithm: RESET USER TABLE

  *      This program will reset the user access table for ALL users of
  *    the system.  Because of the completeness of this procedure, please
  *    inform any other users to end their session before you continue on
  *    with this program.



     WARNING: There are other users. Enter USER ID to verify: ########


                         NOTE
       Having to re-set the user access table should not become normal
     procedure.  If you find that you are using this option often, it
     may be an indication of a more serious problem.
       Please review your operating procedure and be sure you always
     return to the MASTER MENU and execute the option 'End of Session'.
```

1. If the program will
not accept your USER ID
key in:
        SYSTEM
        RETURN

2. When the Master Menu
   appears key in: $

3. Then key in: SYSTEM

Results: The Master
 Menu will appear and
 the system will be
 cleared of open files.

 Go to next page.

SEGMENT I: ACCESSING THE PAGE LAYOUT ALGORITHM FILE

Master Menu

```
Option:      Available Options
$       :  Reset User Table
        :
1       :  Input/Edit Layout Data
2       :  Generate Layouts
3       :  Display Layouts
4       :  Print/Plot Layouts

.       .  End of Session
```

```
1. When the Master Menu
   appears key '1' to access
   the Input/Edit option.
```

```
2. When the Project File
   Listing appears go to
   page 8.
```

```
PLA: Input/Edit Data      Project File Listing

                            # HANDBOOK
                            .
                            .
                            .
                            .
                            .
                            .
                            .
                            .
                            .
                            .
                            .
                            .
                            .

         A [Add Project file]     spacebar [Selector down]
Options  D [Delete Project file]  Backspace [Selector up]
         RETURN [Edit Project file] SF' 15 [ For Master Menu ]
```

SEGMENT II: CREATING/EDITING FILES

Creating a Project File

Enter Project Name...HANDBOOK
Enter Project Manager... TERRELL

PLA: Input/Edit Data   Project File Listing

                              # HANDBOOK

              A [Add Project file]   spacebar [Selector down]
    Options   D [Delete Project file]   Backspace [Selector up]
              RETURN [Edit Project file] SF' 15 [For Master Menu]

1. Key in 'A' to create
   a new Project File.
   The Project File List-
   ing will hold up to 51
   Projects.

2. Key in the Name of
   the new Project File
   and Name of the
   Project Manager when
   requested to do so.

PLA: Input/Edit Data   Book Listing for HANDBOOK

                              # ACCESS
                              . BOOK 1
                              . BOOK 2

              RETURN [Edit Book file]   spacebar [Selector down]
    Options   A [Add Book file]   Backspace [Selector up]
              D [Delete Book file]   SF'15 [To Re-select Project]

Results: The Book
   listing will appear.
   Each Project may
   contain up to 51 Books
   Go to page 9.

27

SEGMENT II: CREATING/EDITING FILES

Catalog - Book Listing

```
PLA: Input/Edit Data        Book Listing for HANDBOOK

                              # ACCESS
                              . BOOK 1
                              . BOOK 2
                              .
                              .
                              .
                              .
                              .
                              .
                              .
                              .
                              .
                              .
                              .
                              .
                              .
                              .
                              .

            RETURN [Edit Book file]     spacebar [Selector down]
    Options  A [Add Book file]          Backspace [Selector up]
             O [Delete Book file]       SF'15 [To Re-select Project]
```

1. Key in 'A' to create a new Book.

```
ENTER BOOK NAME...##########
```

2. Key in the Name of the new Book.

```
PLA: Input/Edit Data        User Page Listing for ACCESS

                              # 001   . 019
                              . 002   . 020
                              . 003   . 021
                              . 004   . 040
                              . 005   . 022
                              . 006   . 024
                              . 007   . 025
                              . 008   . 026
                              . 009   . 027
                              . 010   . 028
                              . 011   . 029
                              . 012   . 030
                              . 013   . 031
                              . 014   . 032
                              . 015   . 033
                              . 016   . 034
                              . 017   . 035
                              . 018   .

            RETURN [Edit Page file]     spacebar [Selector down]
    Options  A [Add Page file]          Backspace [Selector up]
             O [Delete Page file]       SF'15 [To Re-select Book]
```

Results: User Page Listing will appear on the screen. Each book may contain up to 100 pages. Go to page 10.

Note: PLA files are arranged in the following hierarchy:
Project File = up to 51 Projects
each Project = up to 51 Books
each Book   = up to 100 pages.

1. Key in 'A' t
create a new
page.

2. Key in the
number of the new
page.

Key in the type
of units (inche
or centimeters .

Key in the numb
of pictures in
the layout.

Spacebar (Selector Down)
Backspace (Selector Up)
Shift /To Re-Select Back...

ches, 'C'= centimeters)...I
ctures (1-5)...#

Results: The new
Input/Edit Page
Data will appear
on the screen.
Go to page 11.

	PLA: Input-edit Page Data			05/19/82 5:16

PICTURE DIM'S
Width Height

1	0	0				
2	0	0		PICTURE RELATIONSHIPS		
3	0	0	Pic Pic Same. Coordinates		
4	0	0	To From Pic X Y		
5	0	0	0	0	0	
6	0	0	0	0	0	
7	0	0	0	0	0	
8	0	0	0			
9	0	0				
10	0	0	0	0	0	
11	0	0	0	0	0	
12	0	0	0			
13	0	0	0	0	0	
14	0	0	0	0	0	
15	0	0	0	0	0	
16	0	0	0	0	0	
17	0	0	0	0	0	
18	0	0	0	0	0	
19	0	0	0	0	0	

Devices:
'Post,'P'rint,'S'ave,'.' [one]
Enter additional Width or 0:

SEGMENT II: CREATING/EDITING FILES

Picture Dimensions

1. First, key in RETURN until the
Cursor is on the desired line.
You may return the Cursor to the
previous data point by keying
Special Function Key SF-15.

2. Next, key in the dimensions of
each picture. You must use a 0
preceding the decimal point
for any number less than one
(e.g., 0.55).

Go to page 12.

```
 Page : 1    Unit         PLA: Input/Edit Page D           05/19/82 S: 1
                              PICTURE DIM's
                              Width  Heigth
 Main Overview Pict      -] 1   3      2       PIC and LABEL RELATIONSHIPS
                           2   3      2       Pic. Pic. Label   Coordinates
                           3   3      2        To  From From    X      Y
                                          4    0    0    0      0      0
                                          5    0    0    0      0      0
                                          6    0    0    0      0      0
                                          7    0    0    0      0      0
                                          8    0    0    0      0      0
                                          9    0    0    0      0      0
                                         10    0    0    0      0      0
                                         11    0    0    0      0      0
                                         12    0    0    0      0      0
                                         13    0    0    0      0      0
                                         14    0    0    0      0      0
                                         15    0    0    0      0      0
                                         16    0    0    0      0      0
                                         17    0    0    0      0      0
 Page Input/Edit Choices:                18    0    0    0      0      0
 ['##' Line #,'T'ext,'P'rint,'S'ave,'.' Done]
 Enter Desired Option: 01
```

Note: Picture 1 is always the
overview picture.

SEGMENT II: CREATING/EDITING FILES

Input/Edit Page Data

```
Page : 1    Units : I     PLA: Input/Edit Page Data           05/19/82 S: 16
                          PICTURE DIM's
                          Width    Heigth
Main Overview Picture --} 1   3        2           PIC and LABEL RELATIONSHIPS
                          2   3        2          Pic. Pic. Label    Coordinates
                          3   3        2           To  From From     X      Y
                                              4    1    2    0       .5     .75
                                              5    1    3    0      2.5     1
                                              6    2    0    1       .75    75
                                              7    3    0    2      2.5     1
                                              8    0    0    0       0      0
                                              9    0    0    0       0      0
                                             10    0    0    0       0      0
                                             11    0    0    0       0      0
                                             12    0    0    0       0      0
                                             13    0    0    0       0      0
                                             14    0         0       0      0
                                             15    0         0       0      0
                                             16    0         0       0      0
                                             17    0    0    0       0      0
                                             18    0    0    0       0      0
Page Input/Edit Choices:
['##' Line #,'T'ext,'P'rint,'S'ave,'.' Done]
Enter Desired Option: 01
```

1. Key in the Picture/Label Relation-
   ships and Coordinates.
   You must use a 0 preceding any
   number less than one (e.g. 0.55).

Note: The Coordinates are easily found
        using the X – Y Grid located in
        the back of this Handbook.

2. If you wish a hard copy of the
   Input/Edit Data Page key in:
        'P' RETURN

```
                                    page 1

  PLA:  ACCESSING THE PAGE LAYOUT ALGORITHM FILE

                                    1. Key in:  RESL*
                                       Results: If the computer is ready
                                       for commands a ready message will
                                       appear on the screen.
                                       Example:
                                       READY (BASIC-2) PARTITION 04

                                    2. Key in:  LOAD
                                                RUN
                                                Return
                                       Results: Menu Display
```

SEGMENT II: CREATING/EDITING FILES

Header


```
Page : 1    Units : I    PLA: Input/Edit Page Data        05/19/82 5: 1
                         PICTURE DIM's
                         Width   Height
Main Overview Picture --] 1   3      2          PIC and LABEL RELATIONSHIPS
                          2   3      2          Pic. Pic. Label   Coordinates
                          3   3      2           To  From From     X       Y
                                            4     1    2    0     .5      .75
                                            5     1    3    0    2.5      1
                                            6     2    0    1    .75      .75
                                            7     3    0    2    2.5      1
                                            8     0    0    0     0       0
                                            9     0    0    0     0       0
                                           10     0    0    0     0
                                           11     0    0    0
                                           12     0    0
                                           13     0    0
                                                  0    0    0     0       0
                                           16     0    0    0     0       0
                                           17     0    0    0     0       0
                                           18     0    0    0     0       0

Page Input/Edit Choices:
['##' Line #,'T'ext,'P'rint,'S'ave,'.' Done]
Enter Desired Option: 01
```

1. Key in 'T'
   RETURN
   Results: The
   Text Menu will
   appear on the
   screen.

```
Text Input/Edit Choices:
['L'abel Input/Edit, 'D'elete Label, 'H'eader, 'F'ooter, '.' Text Done]
Enter the Desired Option: #
```

2. If you wish a
   Header message
   key in: 'H'.
      If you do not
   wish a Header go
   to page 14.

```
                            HEADER

PLA:  ACCESSING THE PAGE LAYOUT ALGORITHM FILE
```

3. Key in up to
   six lines of
   Header text. Key
   RETURN to move
   Cursor next line.
   When the message
   is complete Key
   RETURN until the
   Text Menu appears.
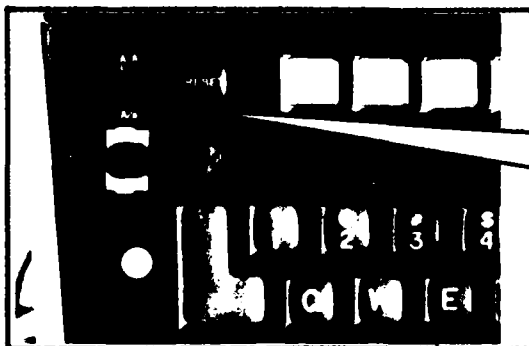
Note: If you wish
   to use the upper
   and lower case
   alphabet switch
   the selector
   located on the
   upper left corner
   of the key board.
   Go to page 14.

SEGMENT II: CREATING/EDITING FILES

Footer

```
Text Input/Edit Choices:
['L'abel Input/Edit, 'D'elete Label, 'H'eader, 'F'ooter, '.' Text Done]
Enter the Desired Option: #
```

1. If you wish a
   Footer message
   key in 'F'.
     If you do not
   wish a Footer go
   to page 15.

```
                              FOOTER
```

2. Key in up to
   six lines of
   Footer text. Key
   RETURN to move to
   the next line.
   The message will
   be printed
   exactly as you
   space it.

3. When the Footer
   message is complete
   key RETURN until
   the Text Menu
   reappears.
   Go to page 15.

SEGMENT II: CREATING/EDITING FILES

Label

```
Text Input/Edit Choices:
['L'abel Input/Edit, 'D'elete Label, 'H'eader, 'F'ooter, '.' Text Done]
Enter the
```

1. If you wish to enter a label key in 'L' . Then key the number of the label you wish to enter.

```
Enter the Desired Label To Input/Edit ( 1 - 4 ): #
```

2. Enter the labels in the order you wish them to appear. Example: label 1 will appear next to label 2.
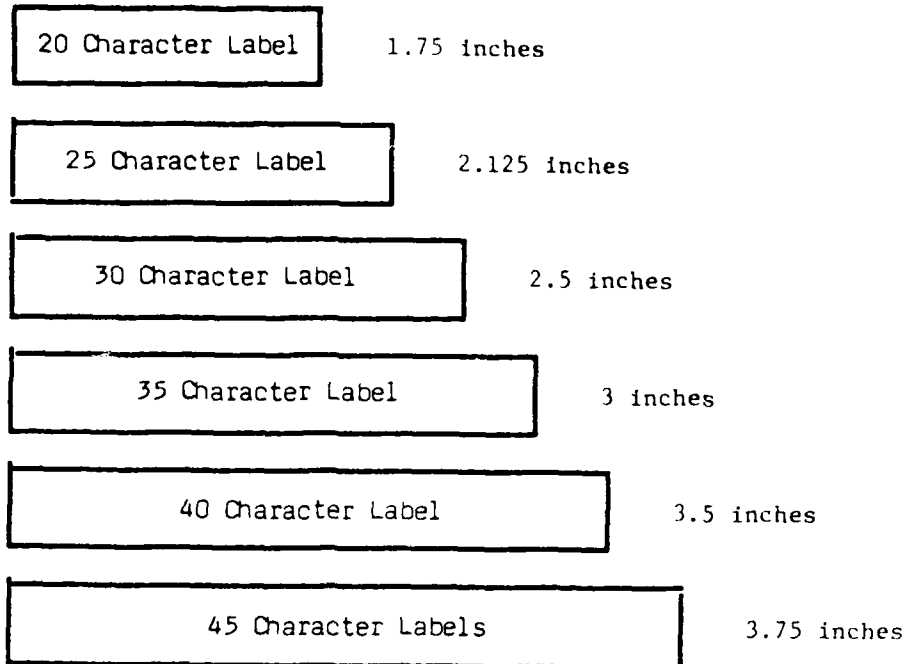
Note: If you wish to correct a label number, key in SF-15 to return to the previous data entry point.

```
Enter the Label Character Width ( 1 - 75 ): ##
```

3. Label Character Width may be manipulated to provide short-wide or tall-narrow labels. Check label widths on page 16.

SEGMENT II: CREATING/EDITING FILES

Label Character Width

20 Character Label	1.75 inches
25 Character Label	2.125 inches
30 Character Label	2.5 inches
35 Character Label	3 inches
40 Character Label	3.5 inches
45 Character Labels	3.75 inches

Note: The computer will allow up to 75 characters.

Use this Label Character Width Scale to aid in the
estimation of label sizes.

SEGMENT II: CREATING/EDITING FILES

Labels

Enter the Label Character Width (1 - 75): ##

Page Layout Algorithm: Text Input/Edit
LABEL 1

[NOTE: Key '$' at the End of a Line to End the Label]

1. Enter the Label Character
   Width. Label 1 will
   appear with a line of
   dashes corresponding to
   the Label Character Width.
   key: RETURN

Page Layout Algorithm: Text Input/Edit
LABEL 1

1. Key in: RESET
   Results: If the computer is ready
   for commands a ready message will
   appear on the screen.
   Example:
   READY (BASIC-2) PARTITION 04
   :
                                    $

2. Key in the information as
   you wish it to appear in
   the label. Label 1 in this
   example is "1.". It could
   be called Note or any other
   designation you choose.

Note: If you wish to
   correct errors go to page
   18. If you wish to
   underline go to page 19.

3. At the end of the text
   key in: RETURN
             SPACEBAR (to end of
                        line)
                  $
             RETURN

Note: After you have keyed
   in RETURN to end the label
   the Text Menu will appear
   on the screen.
   Go to page 20.
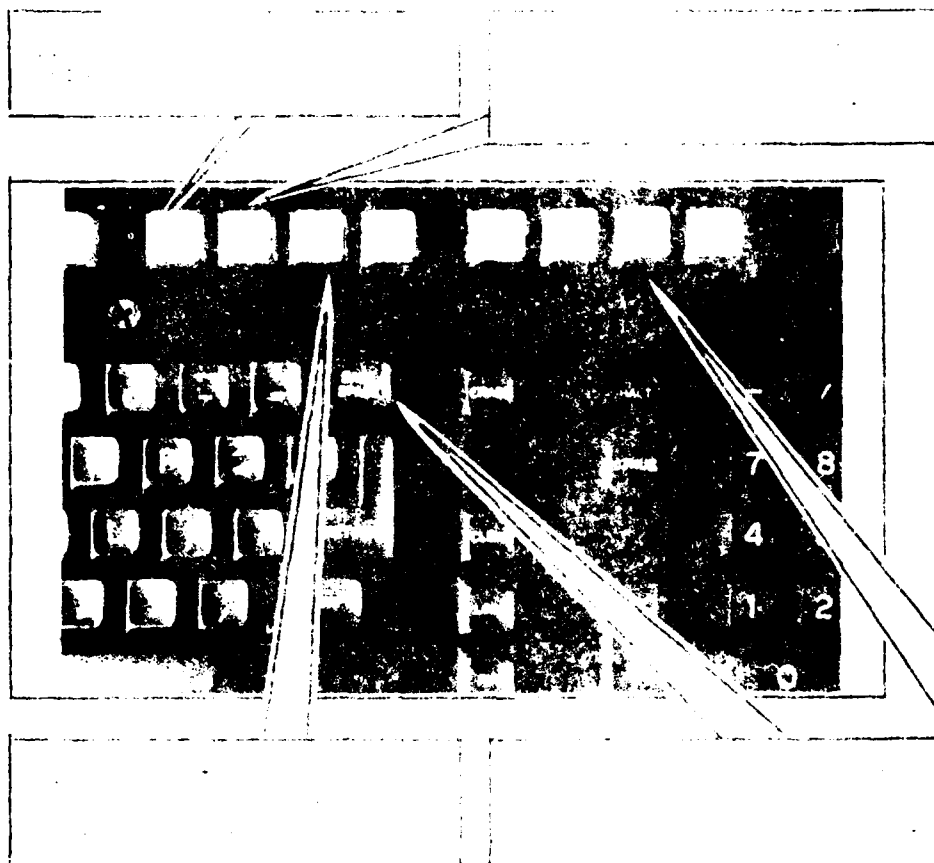
SEGMENT II: CREATING/EDITING FILES

Labels and underlines

LABEL 1

Note: The <u>Paraphrase</u> <u>Page</u>
is a duplicate of the
<u>Information</u> <u>Page</u> with the
key words <u>blanked</u> <u>out</u>. The
purpose of the <u>Paraphrase</u>
<u>Page</u> is to provide readers
a self-check on how well
they remember the material
presented on the <u>Information</u>
<u>Page</u>.

1. If you wish to under-
   line a key word:

FIRST, key the <u>underline</u>,

THEN, key the <u>letter</u>.

LABEL 1

Note: The _____
is a duplicate of the
_____ . _____ with the
key words _____ _____. The
purpose of the _____
_____ is to provide readers
a self-check on how well
they remember the material
presented on the _____
_____.

2. When Paraphrase Pages
   are printed ALL under-
   lined words are blanked
   out.
   Return to page 17.

38

SEGMENT II: CREATING/EDITING FILES

Labels

1. After completing Label 1 you may key in
   'L' to begin Label 2.

```
Page Layout Algorithm: Te      ut/Edit                          05/19/82 S: 1
                        LABEL

  2. Key in:   LOAD
               RUN
               RETURN
     Results:  Menu      ay




Text/Input/Edit Choices:
['L'abel Input/Edit, 'D'elete Label, 'H'eader, 'F'ooter, '.' Text Done]
Enter the Desired Option:
```

2. If you wish to delete a label key in 'D'
   and the number of the label that should
   be deleted.

3. Key in a period '.' when text entry is
   completed and you wish to return to the
   Input/Edit Page Data Menu.

SEGMENT II: CREATING/EDITING FILES

Input/Edit Page Data

1. Option 'P' provides a hard copy of the
   Input/Edit Page Data, Header, and Footer.

Page : 1 Units	PLA: Input/Edit Page Data				05/19/82 S: 1	
	PICTURE DIM's					
	Width	Height				
Main Overview Pictur] 1	3	2		PIC and LABEL RELATIONSHIPS		
2	3	2	Pic.	Pic.	Label	Coordinates
3	3	2	To	From	From	X	Y

	Pic. To	Pic. From	Label From	X	Y
4	1	2	0	.5	.75
5	1	3	0	2.5	1
6	2	0	1	.75	.75
7	3	0	2	2.5	1
8	0	0	0	0	0
9	0	0	0	0	0
10	0	0	0	0	0
11	0	0	0	0	0
12	0	0	0	0	0
13	0	0	0	0	0
14	0	0	0	0	0
15	0	0	0	0	0
16	0	0	0	0	0
17	0	0	0	0	0
18	0	0	0	0	0

Page Input/Edit Choices:
['##' Line #,'T'ext,'P'rint,'S'ave,'.' Done]
Enter Desired Option: 01

2. Option 'S' stores the Input/Edit Page
   Data and Text Data in the permanent Page
   Layout Algorithm file.

3. WARNING. Option '.' returns you to the
   Page Listing Menu, however, you will LOSE
   the data entries or changes you have made
   during this session.

4. For the purposes of
   this exercise key 'S'
   and go on to page 22.

SEGMENT III: CREATING/EDITING FILES

Input Edit Data -- User Page Listing

```
┌─────────────────────────────────────┐   ┌─────────────────────────────┐
│ 1. Option RETURN will recall the Page│   │ 2. Option 'A' will initiate │
│    listed adjacent to the Cursor. Key│   │    the process of creating a│
│    SPACE-BAR or BACKSPACE to move the│   │    new Page File.           │
│    Cursor.                           │   │                             │
└─────────────────────────────────────┘   └─────────────────────────────┘

┌──────────────────────────────────────────────────────────────┐
│   PLA: Input/Edit Data      User Page Listing for             │
│                                                               │
│                             # 001  . 01                       │
│                             . 002  .                          │
│                             . 003                             │
│                             . 004                             │
│                             . 005                             │
│                             . 0                               │
│                             .           . 025                 │
│                             .           . 026                 │
│                                         . 027                 │
│                                         . 028                 │
│                             011         . 029                 │
│                             . 012       . 030                 │
│                             . 013       . 031                 │
│                             . 014       . 032                 │
│                             . 015       . 033                 │
│                             . 016       . 034                 │
│                             . 017       . 035                 │
│                             . 018       .                     │
│                                                               │
│            RETURN [Edit Page file]    spacebar [Selector down]│
│   Options  A [Add Page file]          Backspace [Selector up] │
│            D [Delete Page file]       SF-15 [Re-select Book]  │
└──────────────────────────────────────────────────────────────┘

┌─────────────────────────────┐   ┌─────────────────────────────┐
│ 3. Option 'D' will delete   │   │ 4. Option SF-15 will return │
│    the Page file adjacent to│   │    you to the Book Listing  │
│    the Cursor               │   │    for the Project in which │
│                             │   │    you are working.         │
└─────────────────────────────┘   └─────────────────────────────┘

┌─────────────────────────────┐
│ Note:  Before deleting the  │
│    file the computer will ask│
│    ARE YOU SURE (Y/N)?      │
│    Keying in 'Y' will delete│
│    the file.  Keying in 'N' │
│    will retain the file.    │
└─────────────────────────────┘

┌─────────────────────────────┐
│ 5. For the purposes of this │
│    exercise key SF-15 and go│
│    to page 23.              │
└─────────────────────────────┘
```

SEGMENT II: CREATING/EDITING FILES

Input/Edit Data -- Book File

```
┌─────────────────────────────────────────────┐
│ 1. The menu options permit you to edit,     │
│    add, or delete a Book.                    │
└─────────────────────────────────────────────┘
```

```
PLA: Input/Edit Data        Book Listing for HANDBOOK

                                # ACCESS
                                . BOOK 1
                                . BOOK 2
                                .
                                .
                                .
                                .
                                .
                                .
                                .
                                .
                                .
                                .
                                .
                                .
                                .

            RETURN [Edit Book file]    spacebar [Selector down]
   Options  A [Add Book file]          Backspace [Selector up]
            D [Delete Book file]       SF'15 [To Re-select Project]
```

```
┌─────────────────────────────────────────┐   ┌──────────────────────────────┐
│ 2. Option SF 15 will return you to the  │   │ 3. For the purposes of this  │
│    Project File Listing.                 │   │    exercise key SF-15 and go │
└─────────────────────────────────────────┘   │    to page 24.               │
                                               └──────────────────────────────┘
```

SEGMENT II: CREATING/EDITING FILES

Input/Edit Data -- Project File

```
┌─────────────────────────────────────────┐
│ 1. The Menu options permit you to edit,  │
│    add, or delete a Project.             │
└─────────────────────────────────────────┘
```

```
    PLA: Input/Edit Data        Project File Listing

                                # HANDBOOK
                                .
                                .
                                .
                                .
                                .
                                .
                                .
                                .
                                .
                                .
                                .
                                .

              A [Add Project file]      spacebar [Selector down]
    Options   D [Delete Project file]   Backspace [Selector up]
              RETURN [Edit Project file] SF 15 [ For Master Menu ]
```

```
┌─────────────────────────────────────┐   ┌─────────────────────────┐
│ 2. Option SF 15 will return you to the │   │ 3. For the purpose of this │
│    Master Menu.                      │   │    exercise key SF-15 and │
│                                      │   │    go to page 25.         │
└─────────────────────────────────────┘   └─────────────────────────┘
```

SEGMENT III: PAGE LAYOUT GENERATION

```
Option!       Available Options
$      !  Reset User Table
       :
1      !  Input/Edit Layout Data
2      !  Generate Layouts
3      !  Display Layouts
4      !  Print/Plot Layouts
       :
.      !  End of Session
```

1. Key in '2' to access the Generate Layouts option. Go to page 26 after reading the remaining labels on this page.

```
        PAGE GENERATION CHOICES

OPTIONS
   1      Generate ALL Pages of a Book
   2      Generate a Single Page

   .      RETURN TO MASTER MENU
```

Note: The Generate Layouts option actually generates page layouts using the data entered into the Input/Edit Layout Data File.

```
Please Specify the PROJECT Required
ENTER DESIRED PROJECT: ####################

Please Specify the BOOK Required
ENTER DESIRED BOOK: ##########
```

2. Option '1' will generate all the Pages of a Book.

3. If you selected option '1' you would key in the Project Name and Book Name when requested to do so.

SEGMENT III: PAGE LAYOUT GENERATION

```
+----------------------------------------------+
|          PAGE GENERATION CHOICES             |
|                                              |
| OPTIONS                                      |
|    1      Generate ALL Pages of a Book       |
|    2      Generate a Single Page             |
|                                              |
|    .      RETURN TO MASTER MENU              |
+----------------------------------------------+
```

```
+------------------------------------------+
| 1. For the purposes of this exercise     |
|    key in '2' to generate a single       |
|    page of a Book.                       |
+------------------------------------------+
```

```
+------------------------------------------+
| 2. Key in the Project Name, Book Name    |
|    and Page Number when requested to     |
|    do so.  Go on to page 27.             |
+------------------------------------------+
```

```
+--------------------------------------------------------------------+
|                                                                    |
|   Please Specify the PROJECT Required                              |
|   ENTER DESIRED PROJECT: ###################                       |
|                                                                    |
|   Please Specify the BOOK Required                                 |
|   ENTER DESIRED BOOK: ##########                                   |
|                                                                    |
|   Please Specify the PAGE Required          ENTER DESIRED PAGE:  ###|
|                                                                    |
+--------------------------------------------------------------------+
```

SEGMENT III: PAGE LAYOUT GENERATION

Error Messages

1. FATAL ERROR messages indicate why a
   Page may not be generated. A complete
   list of error messages is provided in
   Appendix C.

FATAL ERROR: More Than 1 Picture to a Label For Page   1, ABORTED!

** processing page 1 **

.[ANY KEY TO CONTINUE]

2. When an Error Message occurs, key in
   SF 15 to return to the Master Menu.
   You may then proceed to Input/Edit
   Page Data to correct the error.

3. If a Fatal Error does not occur the
   program will generate all the pages.
   When the last page is generated the Page
   Generation Menu will return to the screen.
   Key a period '.' to return to the Master
   Menu. Go to page 28.

SEGMENT IV: DISPLAY PAGE LAYOUTS

Option!   Available Options
$!   Reset User Table
       !
1   !   Input/Edit Layout Data
2   !   Generate Layouts
3   !   Display Layouts
4   !   Print/Plot Layouts
       !
.   !   End   Session

Graphics Terminal

DISPLAY CHOICES

OPTIONS
    1   Display A Book
    2   Display A Page

    .   RETURN TO MASTER MENU

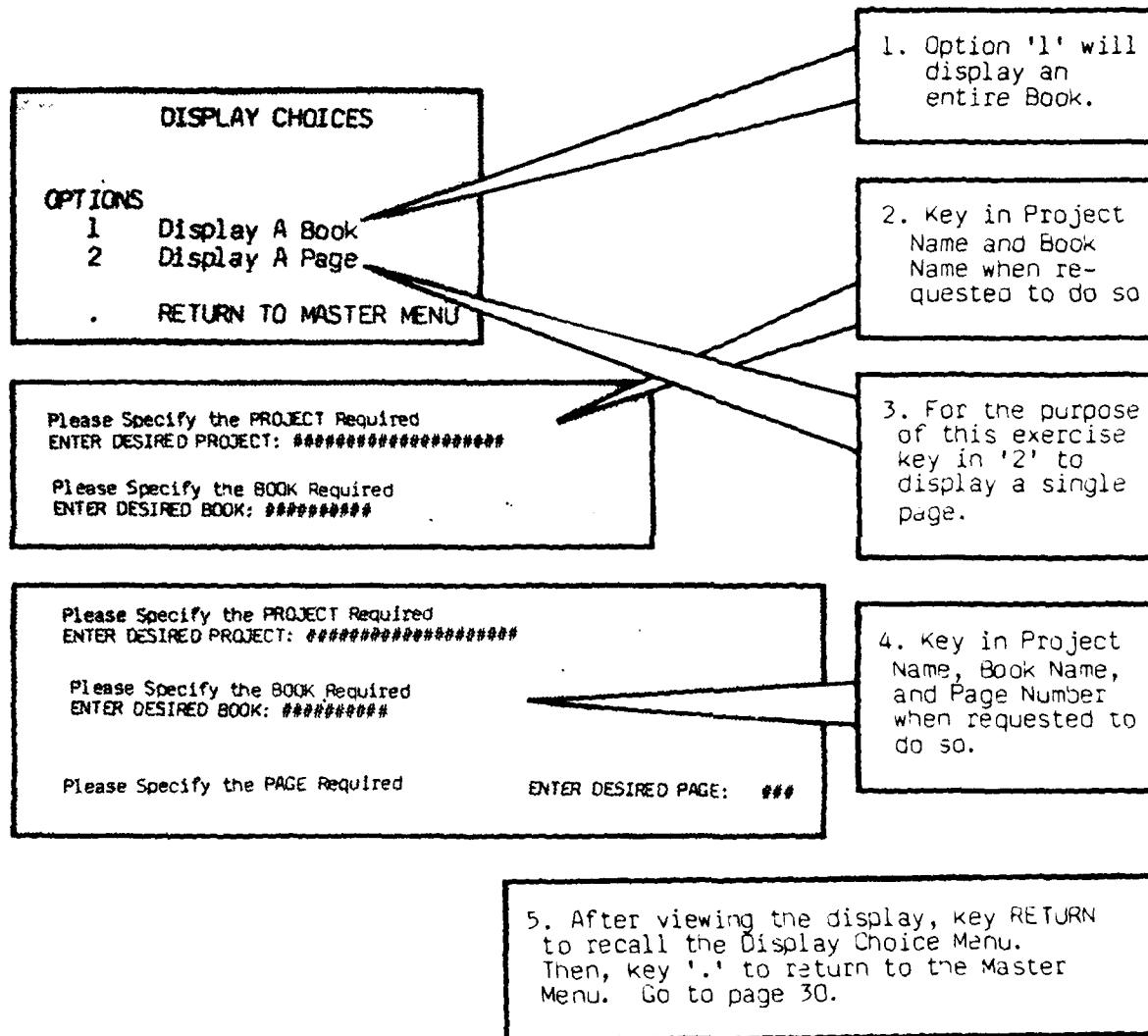1. Key in '3' to list the Display
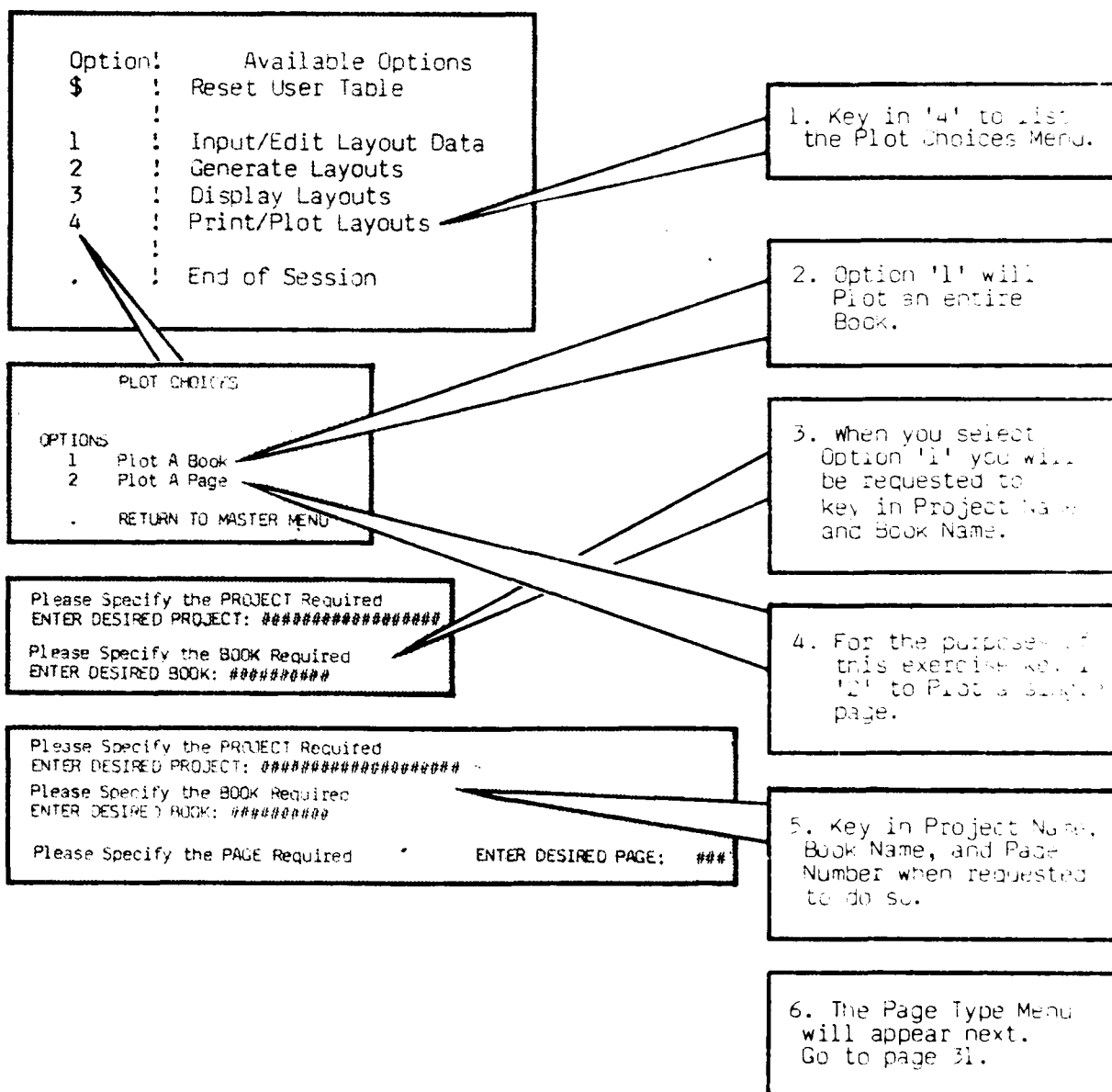   Layout Menu.

2. The Display Option works only on a
   Graphics Terminal.

Page 5
P1
P2   L1
                      L2
P3   L3

Regular Terminal

3. The Regular Terminal will not
   display the lines.

Note: The purpose of the Display
   Option is to provide the user a quick
   way to examine the displays without
   printing them.   Go to page 29.

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SEGMENT IV: DISPLAY PAGE LAYOUTS

```
┌─────────────────────────────┐        ┌──────────────────┐
│       DISPLAY CHOICES        │        │ 1. Option '1' will│
│                              │        │    display an     │
│                              │        │    entire Book.   │
│ OPTIONS                      │        └──────────────────┘
│     1    Display A Book      │
│     2    Display A Page      │        ┌──────────────────┐
│                              │        │ 2. Key in Project│
│     .    RETURN TO MASTER MENU│       │    Name and Book │
└─────────────────────────────┘        │    Name when re- │
                                        │    quested to do so│
┌─────────────────────────────┐        └──────────────────┘
│ Please Specify the PROJECT Required
│ ENTER DESIRED PROJECT: ###############
│                              │        ┌──────────────────┐
│ Please Specify the BOOK Required      │ 3. For the purpose│
│ ENTER DESIRED BOOK: ##########        │    of this exercise│
└─────────────────────────────┘        │    key in '2' to │
                                        │    display a single│
                                        │    page.          │
                                        └──────────────────┘
```

```
┌──────────────────────────────────────┐     ┌──────────────────┐
│ Please Specify the PROJECT Required   │     │ 4. Key in Project│
│ ENTER DESIRED PROJECT: ##############│     │    Name, Book Name,│
│                                       │     │    and Page Number│
│   Please Specify the BOOK Required    │     │    when requested to│
│   ENTER DESIRED BOOK: ##########      │     │    do so.         │
│                                       │     └──────────────────┘
│ Please Specify the PAGE Required      ENTER DESIRED PAGE:   ###
└──────────────────────────────────────┘
```

┌──────────────────────────────────────┐
│ 5. After viewing the display, key RETURN│
│   to recall the Display Choice Menu.   │
│   Then, key '.' to return to the Master│
│   Menu. Go to page 30.   │
└──────────────────────────────────────┘

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SEGMENT 7: PRINT/PLOT PAGE LAYOUTS

```
 Option!     Available Options
 $    !   Reset User Table
      :
 1    :   Input/Edit Layout Data
 2    :   Generate Layouts
 3    :   Display Layouts
 4    :   Print/Plot Layouts
      :
 .    :   End of Session
```

```
         PLOT CHOICES

OPTIONS
    1    Plot A Book
    2    Plot A Page

    .    RETURN TO MASTER MENU
```

```
Please Specify the PROJECT Required
ENTER DESIRED PROJECT: ################

Please Specify the BOOK Required
ENTER DESIRED BOOK: #########
```

```
Please Specify the PROJECT Required
ENTER DESIRED PROJECT: ################

Please Specify the BOOK Required
ENTER DESIRED BOOK: #########

Please Specify the PAGE Required      ENTER DESIRED PAGE:   ###
```

1. Key in '4' to list the Plot Choices Menu.

2. Option '1' will Plot an entire Book.

3. When you select Option '1' you will be requested to key in Project Name and Book Name.

4. For the purpose of this exercise key in '2' to Plot a single page.

5. Key in Project Name, Book Name, and Page Number when requested to do so.

6. The Page Type Menu will appear next. Go to page 31.

SEGMENT V: PRINT/PLOT PAGE LAYOUTS

Information/Paraphrase Pages

1. Option '1' prints out Information Pages

PAGE TYPE CHOICES

OPTIONS
    1   Information Page(s)
    2   Paraphrase Page(s)

    .   RETURN TO PREVIOUS MENU

Note: The Information Page is the basic
instructional page in a Procedure
Training Aid. The pages in this Handbook
are Information Pages.

2. Option '2' prints out Paraphrase Pages.

Note: The Paraphrase Page is a duplicate
of the Information Page with key words
blanked out. The purpose of the
Paraphrase Page is to provide readers a
self-check on how well they remember the
material presented on the Information
Page.

3. For the purposes of this exercise
key '1' and go to page 32. The Page
Arrow Menu will appear next.

SEGMENT V: PRINT/PLOT PAGE LAYOUTS

Arrow Choices

PAGE ARROW CHOICES

OPTIONS
1   With ALL generated arrows
2   With ALL generated arrows lettered
3   With NO label/picture cutting arrows
4   With NO Arrows At All

.   RETURN TO PREVIOUS MENU

1. Option '1' provides
   a printout with all
   arrows including
   those that cut
   labels and pictures.

2. Option '2' provides
   label arrows printed
   in letters instead
   of dots.
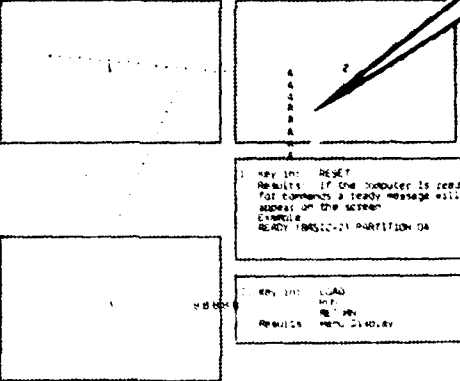
3. Option '3' provides
   a printout which
   eliminates arrows
   that cut labels and
   pictures.
   Option 3 is generally
   used as the final
   printout. The elimin-
   ated arrows are drawn
   in by hand.

4. Option '4' provides
   a printout which elim-
   inates all arrows.

5. For the purposes of
   this exercise key '1'
   and go to page 53.
   The Header/Footer Menu
   will appear next.

SEGMENT V: PRINT/PLOT PAGE LAYOUTS

    Header/Footer Border Printouts

1. For the purposes of this exercise key '3' which indicates both Header and Footer should be printed. The Plot Speed Control will appear next. Go to page 34.

```
           HEADER/FOOTER CHOICES

OPTIONS
   1     Header Bordered
   2     Footer Bordered
   3     Both Bordered
   4     Neither Bordered

   .     RETURN TO PREVIOUS MENU
```

Note: The advantage in opting not to use a border is the time saved in printing.

SEGMENT 4: PRINT MULTI-PAGE LAYOUT

Page (continued)

[GP] SPECIFICATION
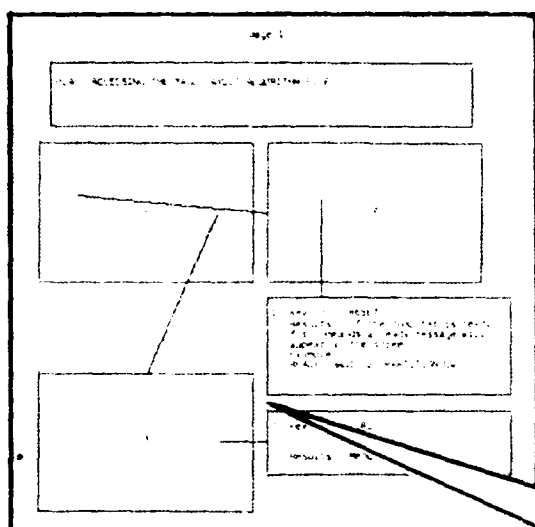
1. Slow Speed (solid line)
2. Medium Speed
3. Fast Speed
4. Ultra Fast Speed

RETURN TO PREVIOUS MENU

1. For the purpose of this exercise key "1" and go to page 55 after reading the remaining labels on this page.

Note: Slow Speed produces a solid line suitable for camera ready copy.
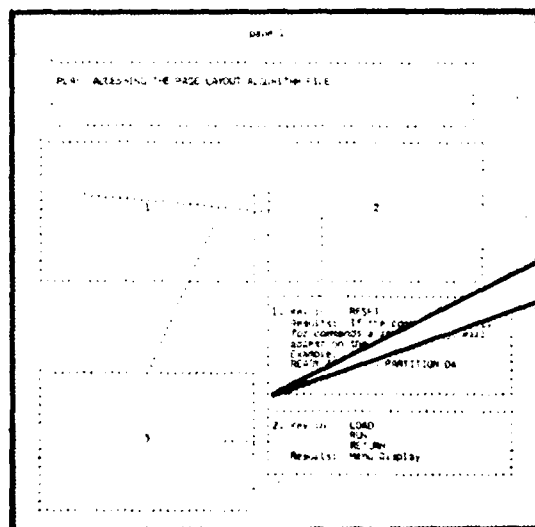
Note: Medium, Fast, and Ultra Fast Speeds produce dotted lines. The faster the speed the greater the space between the dots.

Note: The purpose of Medium, Fast, and Ultra Fast Speeds is to produce a quick hard copy for examination during development of the page layout.

SEGMENT V: PRINT/PLOT PAGE LAYOUT

Daisy Wheel Printer

Make Sure the Daisy-Wheel Top-of-Form is Set Where You Want It, and the pitch is set to '12', and then Hit Any Key to Continue.

Note: This statement will appear on the screen when the program is ready to print.

---

1. Switch the Daisy Wheel Pitch Control to 12. Make sure the power is turned on.

---
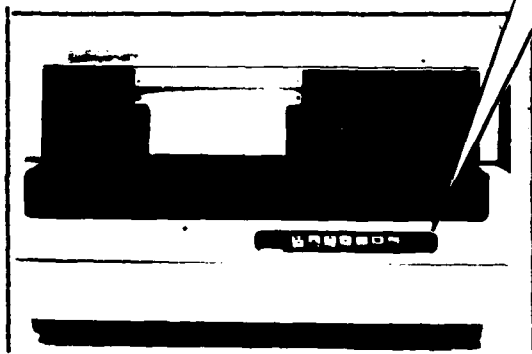
2. Hit any key to Print/Plot.

---

3. When Print/Plot is completed the Plot Choice Menu will appear on the screen.

---

4. For the purposes of this exercise key in a period '.' to return to the Master Menu. Go to page 36.

SEGMENT VI: END OF SESSION

```
+---------------------------------------------+
| Option:      Available Options ←            |
| 5    :   Reset User Table                   |
|      :                                      |
| 1    :   Input/Edit Layout Data             |
| 2    :   Generate Layouts                   |
| 3    :   Display Layouts                    |
| 4    :   Print/Plot Layouts                 |
|      :                                      |
| .    :   End of Session                     |
+---------------------------------------------+
```

1. Key in any of the User Options to continue work in PLA

2. Key in '.' if you wish to end the session.

```
+----------------------------------------------------------+
|        ---+----       ---------------------------------   |
|    -----------------+----    ------------------------     |
|    ---------------------          //                     |
|    ---+-----          //                                 |
|              --------------------------/                 |
|         )]   ------    ------  /                          |
|              ------------------/                          |
|                                                          |
|                                                          |
|   Thank you BILL for using the PAGE LAYOUT ALGORITHM     |
|                                                          |
|   END PROGRAM                                            |
|   FREE SPACE= 55830                                      |
+----------------------------------------------------------+
```

3. The END OF SESSION message indicates proper closure of the files.
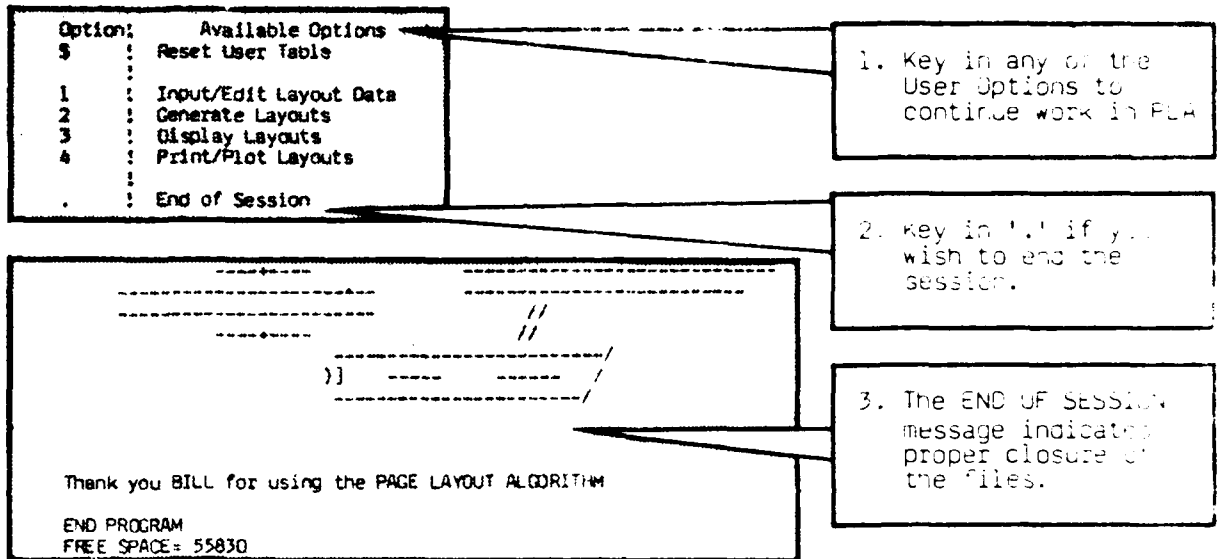
APPENDIX A

SAMPLE PAGES OF INSTRUCTIONAL
MATERIALS CREATED USING PLA
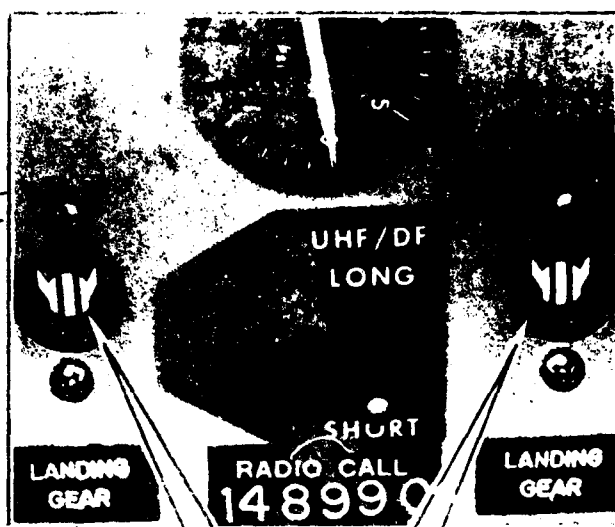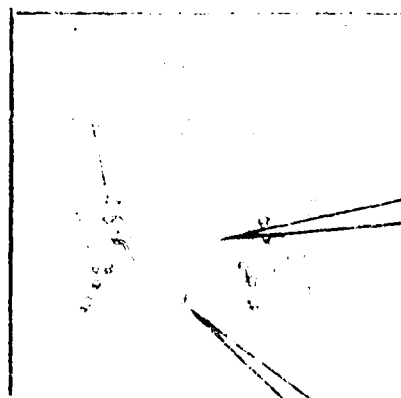
UHF/DF
LONG

SHORT
RADIO CALL
148990

LANDING
GEAR

LANDING
GEAR

GO To PAPER Manuals • Step through item
• Touch whole...
place

5. Action

   Release HDL LT TEST
   switch

6. Results

   Light in LDG GEAR CONT
   handle goes OUT

GO TO PAPER MOCK-UP: . Step through item
                     . Touch where each action and response takes
                       place
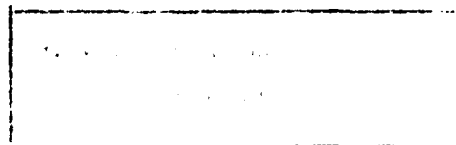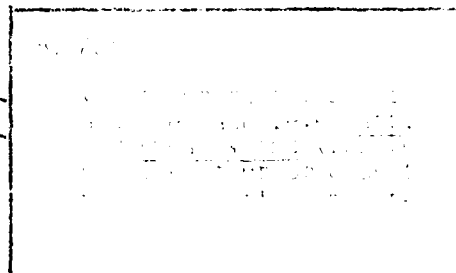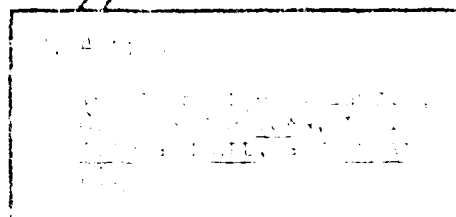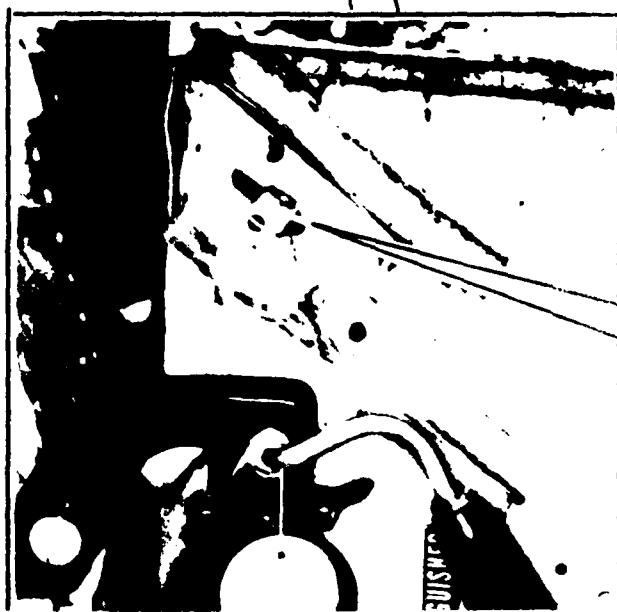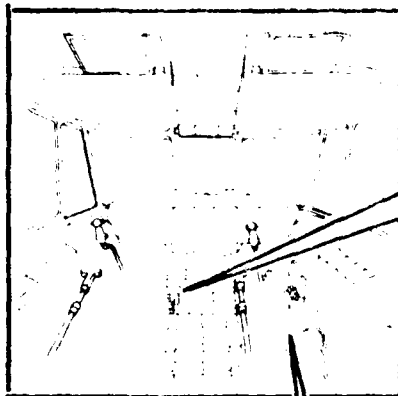
GO TO PAPER MOCK-UP: . Step through each item
                      . Touch where each act... ... ...
                      place

APPENDIX B

FORMAT MODEL FOR DESIGNING
PROCEDURE TRAINING AIDS

FORMAT MODEL
PERFORMING PROCEDURES

A general format for use in designing training m..... which present steps of a p........ to be performed from memory.

Performing Procedures Format Model - Page 1

Use this page format to present each step in a procedure.
The purpose of this page format is to present:
- a word description of the step--emphasize human action.
- a visual display of the step--emphasize human action.
- the purpose of the step.
- the location of actions on equipment
- the system response to action taken
- notes--additional needed information

Break procedure into logical steps.
Each step should start on a new page.

Keep purpose short and simple.

Use line drawings or photographs

If possible, each step should have no more than 3 or 4 actions

State Action, and Response if there is one, and any Note. Number the boxes in the order you want them read.

Use notes to present additional information that must be recalled and used on the job.

If the system makes a response that should be noted or checked, present the response.

Keep pages simple, with no more than 3 or 4 boxes per page. Use additional pages if necessary.

61

Performing Procedures Format Model - Page 2

Use this page format immediately following each use of the page 1 format.

The purpose of this page format is to:
- provide students exercise in the recall of key words in the procedure.
- direct the students to practice the step on the paper mock-up.

Copy the previous page. Then drop out key words that were
underlined on the previous page.
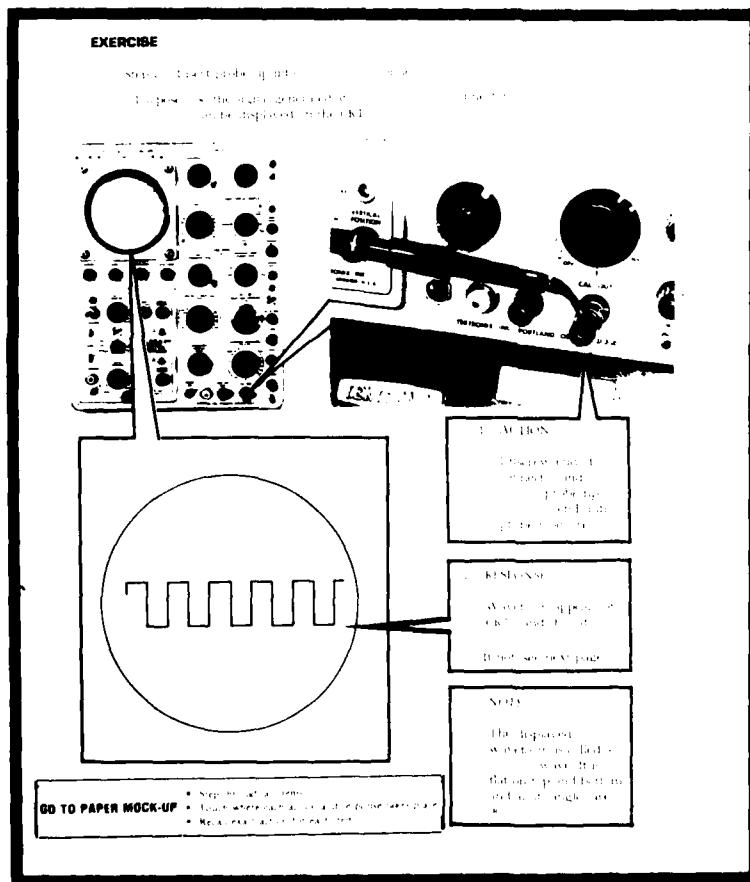
Add directions requiring students to go to the paper mock-up
to practice the step.

Performing Procedures Format Model - Page 3

Use this If/Then page to describe simple branches in a procedure.

The purpose of this page format is to:
- describe a special condition that changes the normal procedure.
- describe the action to respond to the special condition.
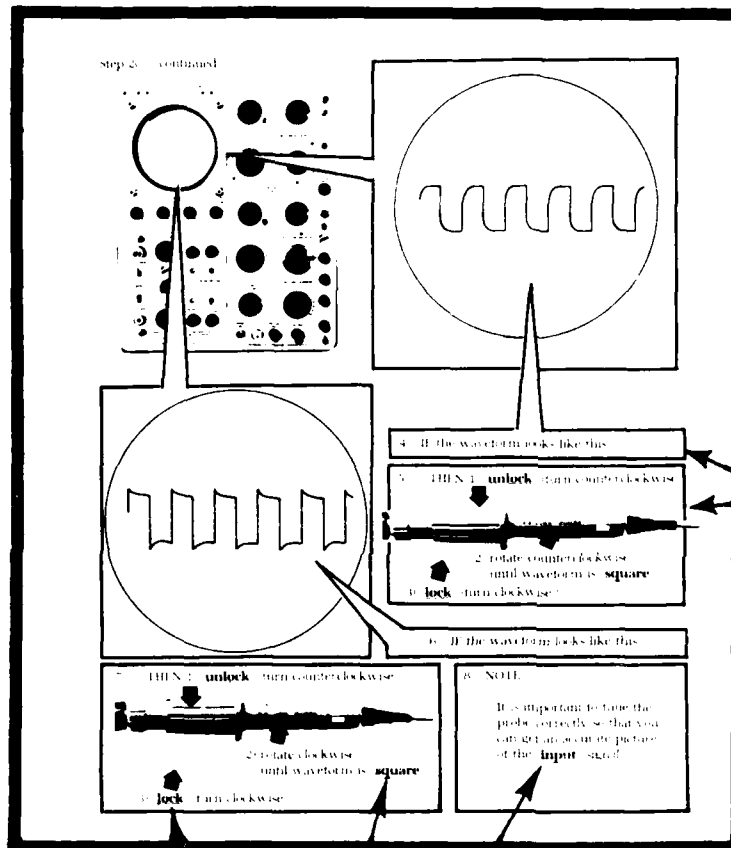
For any additional
Responses and Actions,
use the IF. . . THEN
format.

Continue to underline
key words.

63

Performing Procedures Format Model - Page 4

Use this page after presenting each set of 5 to 7 steps in a procedure.

The purpose of this page format is to provide a finger tracing exercise to aid students in recalling a sequence of steps.

For each cluster of 5 to 7 steps, present a Road Map showing how the steps are chained together.
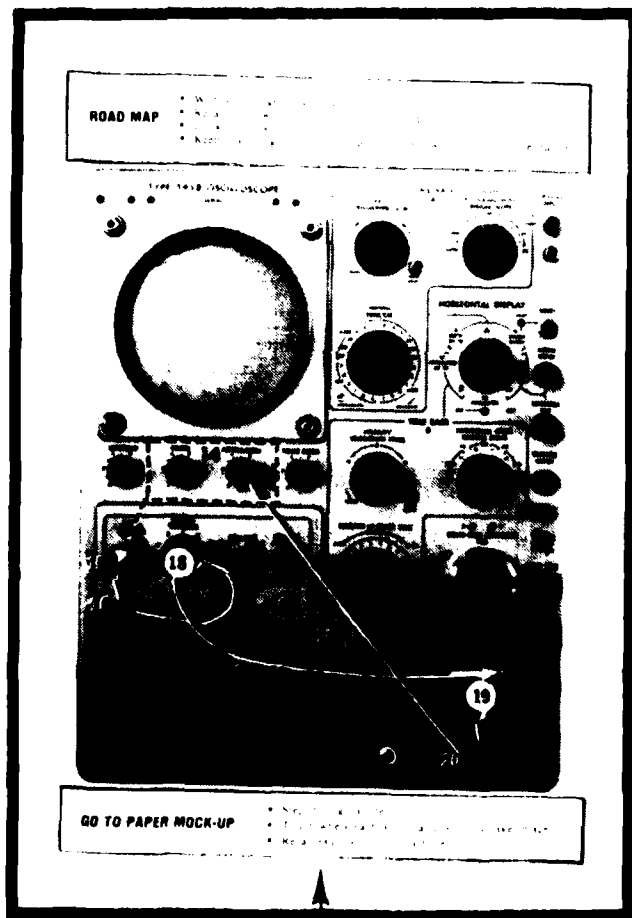
Present last step from previous cluster

If the procedure is to be performed on the job with a checklist, present the checklist items here.

Performing Procedures Format Model - Page 5

Use this type of page at the end of the learning material.

The purpose of this page format is to provide students with a way to practice one step, a set of steps, or all the steps in a procedure without the use of guides and prompts.
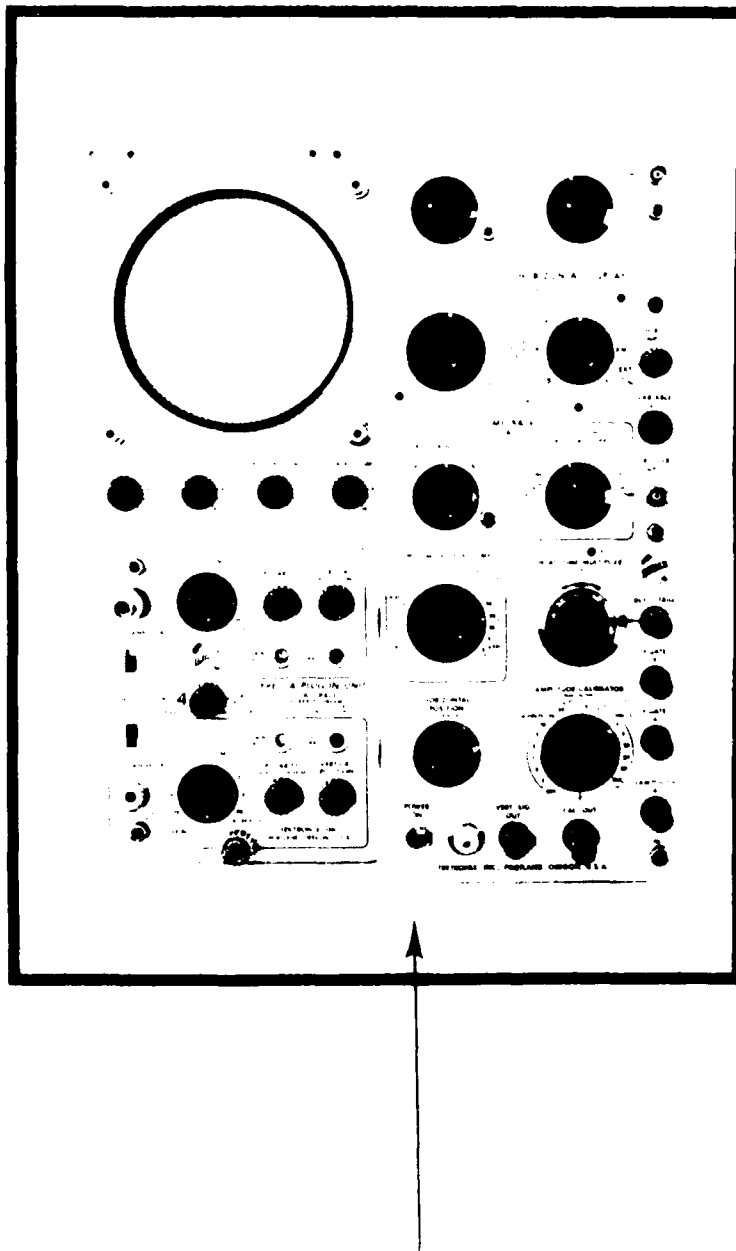
Make sure this page
is a foldout that can
be used at any time.

If the procedure is to be performed on the job with a checklist, present the entire checklist here, or on the opposite page where it can be easily seen while viewing this page.

APPENDIX C

PLA SYSTEM ERROR MESSAGES

PLA SYSTEM ERROR MESSAGES

The occurrence of a Fatal Error Message indicates that a specific page could not be generated for the reason stated in the message. The specific page number is stated in the space designated "###" in the list of error messages.

A Fatal Error indicates that the PLA system was unable to generate a page layout using the data entered in the Input/Edit Page Data for the specific page. The PLA system, after exhausting the repertoire of solutions for that problem, has aborted the process and has provided a Fatal Error Message explaining the reason for terminating the process. The Fatal Error Messages provide sufficient guidance to enable the author to correct the Input/Edit Page Data for that page.

PLA: SYSTEM ERROR MESSAGES

FATAL ERROR: Label too wide for page ###, ABORTED!
FATAL ERROR: Label too long for page ###, ABORTED!
FATAL ERROR: Label too wide and long, page ###, ABORTED!
FATAL ERROR: No Pictures(s) Present in the Data for Page ###, ABORTED!
FATAL ERROR: Illegal Layout, More Than 1 Label to a Pic For Page ###, ABORTED!
FATAL ERROR: Main Overview Pic Referenced Illegally For Page ###, ABORTED!
FATAL ERROR: Main Overview Pic Referenced by a Label for Page ###, ABORTED!
FATAL ERROR: A Label is Missing in the Sequence For Page ###, ABORTED!
FATAL ERROR: Illegal Picture to Label Relationship For Page ###, ABORTED!
FATAL ERROR: Illegal Picture to Picture Relationship For Page ###, ABORTED!
FATAL ERROR: More Than 1 Picture to a Label For Page ###, ABORTED!
FATAL ERROR: More Than 1 Overview To a Close-Up Picture For Page ###, ABORTED!
FATAL ERROR: Picture Dimensions Insufficient to Generate For Page ###, ABORTED!
FATAL ERROR: Internal Coordinates Outside of Pic's Dims For Page ###, ABORTED!
FATAL ERROR: A Reference is Made to a Non-existing Label For Page ###, ABORTED!
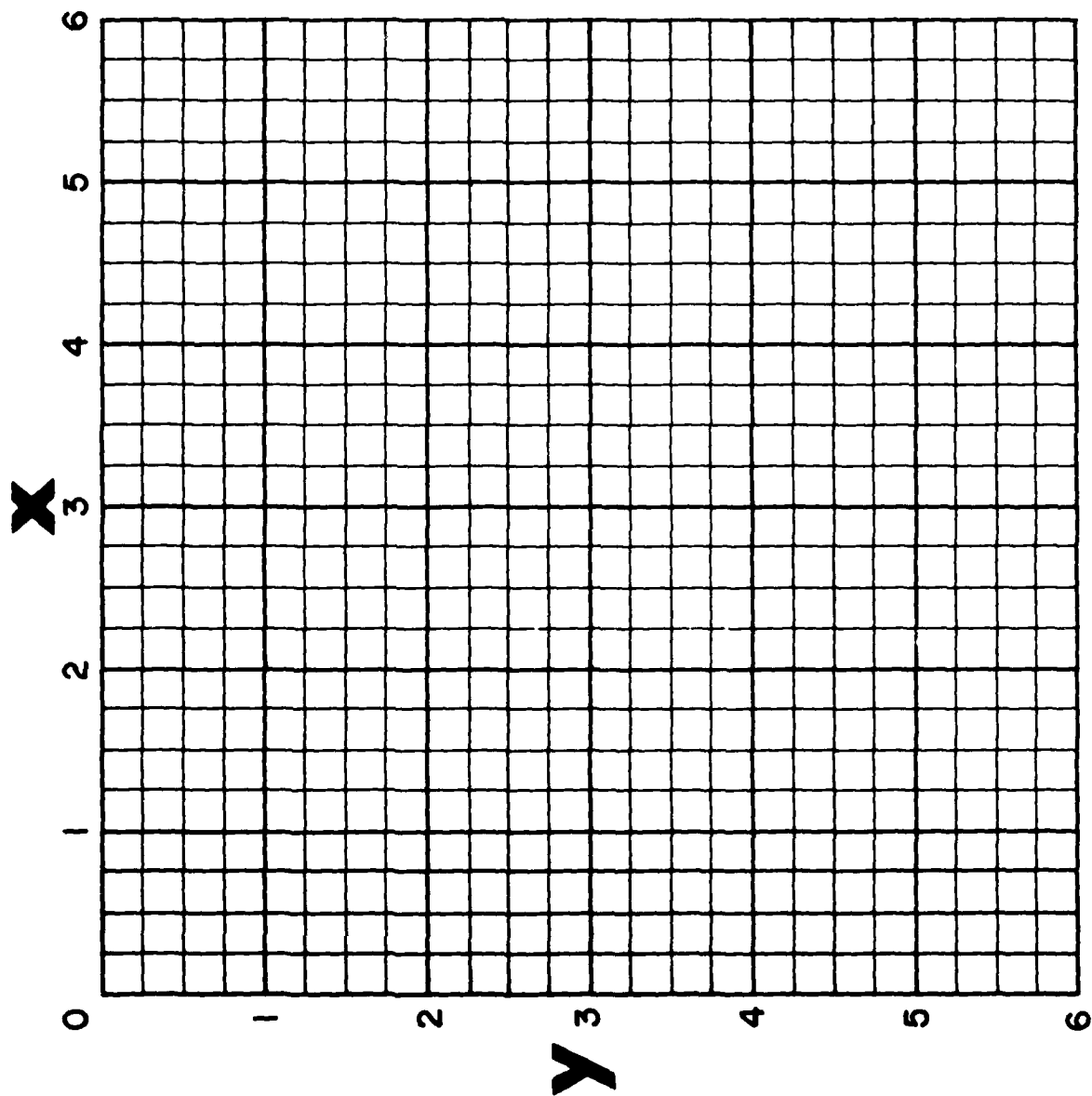
.

APPENDIX D

PLA: PAGE LAYOUT ALGORITHM PICTURE COORDINATES GRID MASTER

The Picture Coordinates Grid is to be used as a master to produce an overlay for the computation of picture dimensions and coordinates. The grid is laid out as an 0.25 inch scale.

PLA: PAGE LAYOUT ALGORITHM
PICTURE COORDINATES GRID

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